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NATURE,

PREVENTION AND CURE

OF

CHOLERA.

BY

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CHOLERA.

Considering it the sacred duty of any one, at the threatened approach of a dread scourge like cholera, to propose any views and means he may know, which not only have proved themselves efficacious, but which can also be shown to be in perfect accord with established physical and pathological laws, I submit the following pages to the public and the profession for serious and candid examination, in view of the imminence of the cholera. My own professional position, and the recognized success in this malady of the curative system I endeavor to represent, permit me to hope for some attention; the more especially as the fearful pestilence finds its most formidable auxiliary in our want of real and philosophical hygienic culture, and the smattering pretentiousness or vacillating impotence of too many of the medical profession.

INTRODUCTION

Volumes upon volumes have been written concerning the origin, nature, and spread of cholera; thousands of

bodies dead of cholera have been dissected ; and in our own immediate day, the academicians, Pasteur and Sainville, and many others have devoted day and night to the anatomical investigation of the malady, while an equally skilful and scientific chemistry, in all the seats of medicine, has exhausted all the appliances of assiduity in its analysis; yet to-day we know but little more than before it first appeared among civilized nations. Under the circumstances, it is very much to be regretted that the general medical faculty treat with decided contempt the prevalent *and correct* impression that *they do not know the causes or treatment of cholera*, but insist and protest that no disease is better understood. Their incongruities will be apparent from a late paper by no less a person than one of our Metropolitan Health Commissioners, who, after saying the above, as usual, gravely goes on to state, of the disease, that "as to its cause there are two elements; first, an epidemic influence, of which *we are entirely ignorant;* second, the agency by which it is transmitted, *with which we are unacquainted.*"

Far from such empiricism, the true physician should endeavor to win public confidence, instead of waking intelligent distrust by utterances stamped either with downright imbecility, or with the old striving—as old as medical incompetency—to keep up the patient's faith at any price.

I. DIFFUSION OF CHOLERA.

The Asiatic Cholera, to us comparatively new, is an immemorial denizen among the rivers taking their rise in the

lofty Himalaya mountains of India. Of these, the most important is the Ganges. About the month of April this stream overflows its borders, inundating a vast basin of more than one hundred miles in width. Here, observers agree, has been the hot-bed of the cholera, and Dr. Montanier even appeals in the name of humanity to drain it as a universal precaution and benefit. Thence the disease spread slowly till it reached countries where the inhabitants, by reason of false civilization, so called; agglomeration of human beings in insufficient spaces; want of cleanliness; bad food and drink, and, above all, that curse of humanity, vaccination, which, by changing the *locus medicamentosus* from the surface to the interior tissues of the body, prepares a welcome and a shelter for every exhausting and destructive malady in the internal organs.

The following are some of a series of authentic observations of the workings of cholera, which, if they do not absolutely establish a system, at least go strongly to found a sound and comprehensive theory for the diagnosis and treatment of the cholera. They are mainly drawn from the researches of the eminent Dr. Dietl, of Cracow.

1. The basin of the Ganges is the main and central hearth of the cholera.

2. Its first progress was almost uniformly from east to west, but since it has often taken very different directions.

3. As a general though not invariable rule, it spreads by uninterrupted advance from place to place.

4. It often confines itself to very narrow lines of march, within which it proceeds almost in a straight line, turning neither to the right nor to the left.

5. It usually keeps the highways of human travel and traffic, both by land and sea, diverging as they diverge.

6. Large cities or frequented streets often seem to form fresh centres for a renewed diffusion of the disease.

7. Frequently some one locality will remain entirely free, although in active communication with infected districts.

8. Arrived in a locality, the cholera has been known to confine itself to a single neighborhood, and street, house, or individual, notwithstanding constant intercourse of the inhabitants with the infected sufferers.

9. Repeated exemption offers no sort of guaranty for the future. Places have often been spared by one invasion of cholera, only to become special seats of the next, and *vice versa*. Switzerland alone has thus far been entirely exempt.

10. Cholera has appeared and spread in all climates from 21° S. to 65° N. latitude, at all seasons and various elevations, and in all sorts of weather. Very severe cold has been observed to retard it, and high mountains appear generally to check its advance.

11. The duration of a cholera epidemic varies greatly. In large or populous cities, its term is usually from three to four months. We can note a distinct increase, followed by a gradual decrease, although there are marked and often almost regular and seemingly periodical fluctuations of mortality subordinate to these. As a rule, the first outbreaks of the epidemic are most dangerous; but almost always there occur just before the end of the epidemic some very sudden, violent, and fatal cases.

Reasoning from these facts, it is, first of all, very clear that cholera spreads in exact accordance with neither the laws of purely contagious, nor purely epidemic, that is, miasmatic disease. The first great question in examining

into its mode of propagation is, whether it can be spread only by those actually attacked with it, or by any one coming from an infected place. It is certain, to begin with, that it is transmissible by persons affected only with the peculiar diarrhœa characteristic of cholera; and even the washing of clothes stained with such discharges has been known to infect the washer. This most important fact—one which we beg our readers to keep specially in mind—was amply proved by Dr. Max Pettenkofer, of Munich, in his work entitled, "Untersuchungen und Beobachtungen über die Verbreitungsart der Cholera" (Investigations and Observations on the Mode of Diffusion of Cholera), 1855. While fresh, the excretions do not seem to produce any injurious effect whatever; but soon after exposure to air they become a most formidable infectious poison. M. Chevreul, on the 11th of December last, announced to the Academy of Sciences, of Paris, the following results of experiments with cholera excretions on mice. Paper wetted with the fresh intestinal secretions of a cholera patient being eaten by some, these remained perfectly well. The same kind of paper was then exposed to the air and dried, and some other mice which ate it, very soon died.

Now, are not these important facts, well worth the attention of those intrusted with the public health; and should they not be a warning to all to be most careful in their disposition of evacuations and clothes stained with them? Ought there not to be public provision made for disinfecting or chemically disorganizing such by means of quicklime or otherwise, or for burying them deep enough to be innocuous to the atmosphere, and for the burning of all stained clothing?

Pettenkofer further finds, that the mortality in any one

house lasts not more than ten or fifteen days. This is confirmed by observations on a larger scale, taken by Jameson, in the armies of India. It is also shown that rock foundations have a strong tendency to arrest and ward off infection. This was strikingly illustrated in the case of the city of Nüremberg, reported by Dr. Dietl. One side of the city, the "Lorenzen-Seite," built upon a sandy bed, was fearfully decimated by the cholera; while the other, the "Sebalder-Seite," founded on a rocky soil, was nearly, or quite, left exempt. If, then, it be established, as it certainly would seem to be, that the quality of the soil is a modifying element in determining the development of a local epidemic; if a sandy open soil favors, and a rocky foundation opposes the generation of the disease, we are led to ask with Pettenkofer, "What does a man bring into the ground in his intercourse with it?" Clearly nothing but his excrements—the urine and fœces. The facts point undeniably to the conclusion that one great vehicle of infection is the excrements carried from place to place by more or less infected individuals. The question then arises, "How can such excrements cause an epidemic?" Pettenkofer's work, p. 267 seqq., answers this inquiry very satisfactorily. To introduce his arguments here, however, would extend this pamphlet beyond all limits. His results are also confirmed by the Report on the Mortality of Cholera in England, 1848–9; which also alludes expressly to the danger of washing the clothes of patients in the usual manner.

Cholera-miasma rapidly loses its virulence by contact with the atmosphere itself; this will be understood, on remembering that the air, when apparently perfectly calm, is moving at the rate of two and a half feet per second.

The use of blowing machines and the lighting of bonfires for the purification of the air, are therefore utterly ridiculous.

It is not exactly known how long a man may remain exposed to miasma, or inhale it, without injury; it seems well established that a short stay in it will do no harm. Sleeping in an infected atmosphere appears to be most dangerous, as is well known in Italy, where it is a proverbial warning not to sleep in the Pontine Marshes. The seeds of cholera-miasma may be deposited in one or more accidental places, where their development and spread may only depend on the condition of the soil.

Jameson narrates, that soldiers who had had the cholera the year before the epidemic were rarely affected, while those who had never been afflicted suffered greatly. Pettenkofer also cites a case where a cholera refugee, returning to a house in Munich, perfectly free from cholera symptoms, was attacked within eight or twelve days, and originated a fresh spread of the disease.

I will only add here a few more remarks of Pettenkofer in relation to the transmission of cholera in ships to other ports, which he avers will depend on the ship's length of time out at sea. "If an infected ship sails," says he, "and after some days on the high seas cholera breaks out, but afterwards she has to sail for many weeks before landing, those on board will hardly endanger the inhabitants of the port. But if the ship land before all symptoms of cholera among those on board are eradicated, the port, if it contain the pre-requisite conditions of soil, may very readily be infected by the epidemic." We do not know the exact time within which a ship can be freed from cholera infection. Experience has gathered but one fact, that this time

lies between the period of a voyage from Europe to America, which does not protect, and that of the voyage from Europe round the Cape of Good Hope, which does protect; for England has never had the cholera from India, but always from the continent.

Another assertion, that during cholera epidemics the ozone in atmospheric air was entirely wanting, is positively contradicted by Dr. Deitz, of Munich, who has for some years been engaged in a careful and regular series of ozone observations. He states that during the violent epidemic there, in 1854, the average amount of ozone in the atmosphere did not vary in the least. It is, however, certain that ozone destroys miasma, and hence possible that in presence of large quantities of miasma the ozone may be notably absorbed, while not far off its proportion is not perceptibly altered. I consider any such absence of ozone, therefore, as not a cause, but an incidental effect of the cause, of cholera.

II. SYMPTOMS.

Pathological anatomy and chemistry have given us many most interesting but most contradictory facts, nearly or quite valueless, so far, for sick-bed practice. I will not here emulate the bombast with which too many medical (!) authorities cloak this fact, and on which they would have their victims depend. The one great fact is this: that the blood of a cholera patient is in the beginning only changed by a great loss of serum, and that all other and subsequent disturbances are to be regarded as but the natural and

necessary results of such loss, and the consequent tendency to stagnation, decomposition, etc.. This is also the main statement arrived at by Dr. Dietl.

The rice-water-like evacuations which are the first symptom consist of water, slime, epithelia, a little albumen, and the salts of the serum. The fluid vomited contains nearly the same substances.

The thickening of the blood in cholera-cases is clearly nothing else than the consequence of the profuse evacuations, which deprive the blood of enormous quantities of water, causing pulselessness, cold, dryness, thirst, hoarseness, want of urine, croups, etc.

It is a most serious, fatal, and, in a physician, criminal mistake to assert that cholera appears without premonitory symptoms at once, in all its violence, with its characteristic evacuations. All observations of the most eminent physicians concur in proof that every attack of cholera is preceded by a more or less decided diarrhœa. The patient very often overlooks this diarrhœa, because he feels relieved after an evacuation. The public ought to be made aware that, in time of cholera, *the slightest diarrhœa symptom may be a matter of life and death*, and that instant care should be taken to remove it. Dr. Dietl says: "Such cases, where the cholera has, without any apparent cause, suddenly sprung from a diarrhœa—where the cholera is, therefore, to be regarded as a natural gradation of the diarrhoic process—appear so extraordinarily often, that hardly a physician of any practice in cholera cases will pretend to deny it. And, even were such cases more rare, is it a proper conclusion that we should overlook diarrhœa, and deny it the diagnostic importance which belongs to it, according to all experience, simply because not every

diarrhœa occurring during a cholera epidemic progress to real, outright cholera? Granting that only a few sporadic cases, even, ever eventuate in cholera, do not prudence and humanity require even then that we should hold in mind the possibility that any diarrhœa may be the first warning of the pestilence? All this is the more true, as we shall see that there are methods to guide us in distinguishing cholera diarrhœa from another.

There is now, among the thoroughly well informed, no doubt that *hardly any attack of cholera takes place without this precursory diarrhœa;* and that, therefore, for all practical diagnostic purposes, *diarrhœa is to be ranked as the first symptom of the disease.*

Dr. Dietl's analysis proceeds from this point as follows: "If this diarrhœa has increased to an intense form of cholera, we observe two clearly visible and practically valuable *degrees.*

"1. The lighter degree, called *exquisite*, or *perfectly developed* cholera, and—

"2. The higher degree, which may be named the *asphyctic* cholera."

All other divisions are unpractical and valueless for prognosis, diagnosis, and therapeutics.

Dr. Dietl then very practically and simply divides the whole complexity of cholera symptoms into the following stages or degrees:

I. Stage of Evacuations.

(*a.*) Cholera-diarrhœa (the *diarrhœa prémonitoire* of the French schools), first feculent, afterwards rice-water-like intestinal evacuations, without smell, pain, fever, etc.;

patient feels relieved after each evacuation, and attends to his business.

(*b.*) *Exquisite Cholera.*—Vomiting and evacuations of rice-water-like fluids; cramps in the calves; quickened pulsation; cool extremities; light oganosis; violent thirst; hoarse voice; face begins to fade; eyes sink in and are surrounded by a blue ring; patient excited and restless; stomach distended; abdomen soft, but not elastic, with empty percussion-sound; urine scarce, but not suppressed; action of heart can be felt; in the action of heart and large arteries *both sounds* are perceptible.

(*c.*) *Asphyctic Cholera.*—Vomiting and diarrhœa; cramps in legs; high degree of oganosis; no pulsation; ice-cold extremities; skin wrinkled; sticky perspiration; insatiable thirst; almost inaudible voice; eyes deep sunken; patient lies in a torpid state; the painful cramps and burning thirst alone awake him, from time to time, from his apathetic lethargy; the tongue broad, moist, cold; deep sighing; stomach and abdomen as before; urine entirely suppressed.

II. Stage of Reaction.

(*a.*) *Perfect Reaction.*—The rice-water-like evacuations become colored and more consistent; diarrhœa and vomiting cease; pulsation and warmth return; face reddish and puffed up; thirst moderate; head somewhat oppressed; consciousness undisturbed; stomach smaller, and abdomen elastic; finally, a more copious discharge of urine, generally containing albumen, takes place, and the patient recovers entirely.

(*b.*) *Imperfect Reaction.*—All the preceding symptoms appear in a less satisfactory degree, and do not last. Pa-

tient grows torpid again; extremities cold; pulsation disappears; the colored stools become once more whey-like; the urine is again suppressed. After the repetition of some such changes, from worse to better, and better to worse, death mostly ensues.

(*c.*) *Cholera-Typhoid.*—Increased warmth; double pulsation; red, puffed-up face; red, glaring eyes; dry tongue; delirium; sopor; entire unconsciousness; deep snoring;—slow breathing; often convulsions; albumen and fibrous cylinders in the urine; ammoniacal reaction of the exhaled air, and of what is vomited.

I have followed Dr. Dietl's simplified classification of cholera stages, because it really embodies whatever we do actually know, and excludes individual speculation and other sources of confusion. There are a few more remarks which I deem of value, and therefore subjoin:

"The perfect reaction is only possible when the course of the cholera is entirely run—namely, when the specific evacuations, the thickening of the blood, and the characteristic cholera symptoms have entirely ceased. Under such circumstances we can expect, within a few days, perfect restoration, even after the most intense phases of the disease.

"The imperfect reaction is always the consequence of an imperfectly developed cholera process. The evacuations grow less frequent, and gain color, but remain fluid, or occasionally become again rice-water-like, and, with this change of the intestinal secretion, appear collapse and deterioration of the whole physical condition. If the diarrhœa can either be stopped, or their rice-water, biloserous character changed to bilo-mushy, we can count upon a speedy and complete cure, even under these untoward circumstances."

The cholera-typhoid appears more frequently in young and vigorous than in old or weak individuals, because the latter often succumb in the prior stage of evacuation. The cholera-typhoid appears the more surely, in proportion as the evacuations have been more profuse, the asphyctic form more developed, the bilo-serous stools more fluid, and the time longer before reaction. The cholera-typhoid embraces, according to Dr. Dietl's observations and my own experience:

1. A simple fever of reaction, without other complications, characterized by the prior thickening of the blood, and consequent coldness, and the typhoid symptoms are but the results, according to the constitution of the patient, of great exhaustion and disturbed nervous action. The urine is copious, and contains albumen, but not the elements of Bright's kidney infiltration.

2. A fever of reaction, complicated with Bright's kidney infiltration, and often with uræmy. The urine is scanty, and of less than its usual specific gravity.

3. Reactionary fever, complicated with exudative processes in other organs, viz., diptheritis of the mucous surfaces of the mouth, stomach, throat, and intestines, pneumonia, meningitis, etc. The urine contains albumen, but no products of Bright's disease.

These three forms of cholera-typhoid are clearly of a simple, uræmic, and metastatic character respectively. And here let me again assert that the unfortunate endeavor to force into and keep in the body a poisonous substance—pox-matter (be it small-pox or cow-pox)—which nature's laws, under proper atmospheric and telluric circumstances, constantly strive to eliminate, has been the most prominent ally of the cholera in all communities where the supersti-

tion of vaccination has blinded the people. Is it not a fact that, since about forty years, the simplest ailments are apt to prove obstinate, with a constant tendency to a typhoid form? Why, save from some extraneous cause, should a disease like the cholera, bred in an unhealthy and tropic atmosphere, defy every climate, and become a regular and rooted epidemic in regions where all its original conditions are wanting?

To sustain my conviction that some metastatic disease matter has much to do with the development of cholera-typhoid, I must mention another reaction, the *exanthematic*, which appears so frequently under well-directed water treatment. Dr. Dietl and others observed exanthema less often in 1831 and 1832, but far more frequently in 1836. The latter epidemic, though much more widely diffused, was far less fatal and intense. Where this exanthema appeared, even the most malignant cases became less dangerous. Towards the close of the epidemic of 1836, this exanthema became extraordinarily frequent, so that nearly all children attacked showed it, and very few cases, where it fully developed itself, proved fatal.

III. DIAGNOSIS.

The diagnosis of real cholera is not by any means so easy as might be expected. Many a one may have similar symptoms from a variety of causes: dietetic derangement; the use of some emetic or purgative; poisoning by arsenic; mineral acids, and other narcotic poisons; intestinal catarrh; tubercular difficulties, dysentery, typhus, etc., etc.

It is therefore a high duty, and only to decide on the presence of cholera, when no other certain cause, no other established local ailment can be discovered.

Dietl enumerates the following predisposing conditions to cholera, which, I think, it will be valuable to state here.

All diseases, particularly chronic ones, increase the liability to cholera. Everything tending to debilitate or enfeeble the organism aids in originating cholera. *Poverty* plays an important part in cholera-development, with its inseparable concomitants of anxiety, want of necessaries, exhausting exertions, bad food, etc. On the other hand, gluttony, intemperance, uncleanliness, improper dress, overcrowded dwellings, indolence, fatalism, neglect of proper precautionary measures, and recourse to the very worst of remedies, are so many separate attractions and invitations to the disease.

Emetics and Purgatives are also most dangerous occasions of cholera. Dr. Dietl asseverates to have seen, after the smallest doses of emetic or cathartic medicines, violent diarrhœa immediately ensue, followed *in a few minutes* by intense cholera symptoms, and very shortly by death.

Heating drinks and fluids—wine, beer, brandy, rum, and spirituous liquors generally; essence of cinnamon, ammonia, aromatic decoctions, as of chamomile, mint, valerian, etc., are especially injurious when taken, as they often are, by persons unused to their effects, as preventives against diarrhœa. The eminent authority above cited says of these ignorant domestic precautions: "My experience of many years as a physician has convinced me, that, during cholera-epidemics, a great many of the people, particularly of the poorer and less educated classes, fall victims to these dangerous home remedies."

Every thing which tends to disturb digestion, favors the breaking out of cholera, especially if diarrhœa has preceded.

The influence of *fear*, on which some have laid so much stress, Dietl considers as of no great moment, having, as he says, seen the most fearless attacked and killed, while the most terror-stricken remained, even after diarrhœa, entirely free.

Generally cholera, like typhus, attacks but once, though cases have been known where the same individual has had it a second time.

In this connection it seems proper to allude to the conclusion of the Report of Drs. Baly and Gull, by request of the Royal College of Physicians, of which the most important data are the following:—

1. The assumption that any chemical, electrical, or similar atmospheric influence is the cause of epidemic, is untenable. The spread of the disease is not in direct regular connection with the changes of the atmosphere; the great body of facts point to a parallelism of its advance with personal and commercial intercourse.

2. That there exists a real cholera-matter, is proved by the settling of the disease in certain districts of comparatively limited extent, by its diffusion over particular parts of a country, single towns, and even certain portions or streets of a town.

3. A large number of facts go to show, that the intercourse of man and man plays an important part in the diffusion of the disease. The most decided proof is the transportation of cholera by merchant ships. Between points lying near together, currents of air may transmit the disease, but between distant places the only known agency is travel.

4. It is *not* hereby asserted that cholera is infectious; *i. e.*, that the cholera patient exhales the cholera taint. If cholera matter be fostered by moist and impure air, and be capable of adhering to walls, utensils, &c., it can also be absorbed and transmitted by the clothing of persons present in infected spots, and so occasion, under predisposing conditions, a fresh outbreak of cholera. Facts are not wanting which might justify the idea of the direct infection of healthy persons by the sick, but there are very few, if any, which cannot be readily reduced to indirect infection.

Do not the statements of this Report, so far as they go, coincide with and bear out the opinion previously advanced, that fermentation of the excrements of cholera patients is really the main agency in the diffusion of cholera? Should we not, therefore, above all, provide, so far as lies in our power, against the mixture with the atmosphere of the products of such fermentation?

IV. PREVENTION.

I hold, with Dr. Dietl, that there exists no positive preventive against cholera. "All highly recommended, and often dearly paid preventives, have originated in the dark armories of superstition and self-interest, and have mostly done harm, but never any good."

There exists, in fact, but one unfailing remedy, and this is proper care of the functions of the skin, attentive observance of a generous but a simple diet, and immediate and common-sense treatment of any symptons, however unim-

portant in appearance, of diarrhœa. Although it is acknowledged, and dictated by broad and plain principles of hygiene, that the inhabitants of infected districts should not alter their accustomed diet, so far as this may be temperate and sensible, it will be well to avoid all such special indigestibles as smoked and pickled meats, fat, fish, crabs, lobsters, oysters, eggs, and cheese. Green vegetables generally should be eaten sparingly, or not at all; so also mushrooms, fruits, etc. Sour wines and malt liquors should be entirely eschewed. Supper—in fact any meal after six o'clock in the evening—should be very light, because most cholera attacks break out about night. It is also a mistake to dress unusually warmly: the body is the more readily exposed to sudden changes of temperature.

V. TREATMENT.

Cholera is among the *most curable* of the dangerous diseases of the human family. A most unhappy circumstance for mankind is the very name which has been given it, because it has thereby been mentally allied to our common cholera, and its treatment thus influenced to most deplorable results.

With the full and firm conviction before us, that cholera is a most easily manageable malady, provided the first stage, that of choleraic diarrhœa, be only properly attended to, I cannot but feel the deepest regret that so many physicians should utterly misconceive the character and treatment of the disease, and so many others lament the worthlessness of all attempted therapeutics. That the public,

under such circumstances, should lose all hope, and sink into total despondency, is but natural. What else is there for non-medical men, when, for example, a man of the standing of *Dr. Seymour Haden*, F.R.C.S., speaks thus: "In 1848 I saw my share of cholera, and felt my helplessness much in the same degree as other people. *All was confusion.* If I looked to the heads of our profession, or to the great centres of experience, the hospitals and medical charities of the metropolis, I found there the same confusion that reigned elsewhere."

Dr. Pidduck declares: "To arrest the evacuations was invariably to seal the fate of the patient. Where the evacuations were arrested by opiates, astringents, or stimulants, the patient did not die of cholera properly so called, but of the consecutive typhus fever, of which the choleraic symptoms were the precursors."

Dr. G. Wallis exclaims: "Medical treatment can do nothing in some cases: they either die or get well, according to the strength of the vital power or the force of the poison in weak habits. Medical aid can only be useful in such cases as are on the balance, and are struggling to continue the vital functions."

Dr. Joannes's advice, on the other hand, is to stimulate both internally and externally; the one by a mixture, the other by a liniment.

Dr. Willis, after speaking of the failure of every medical remedy to effect a cure, is in favor of hypodermic injection of morphia.

Dr. C. Dudley Kingsford claims great results in the treatment of cholera from large and repeated doses of calomel, and adds: "Notwithstanding that many of my patients have taken, within a few hours, from one to two

hundred grains of calomel (!!!), I never witnessed salivation or any other evil consequence from its administration. At first I used to give opium in combination with calomel, but very soon discontinued the practice, being unable to trace the least benefit, and observing that they who took the two suffered far more from the consecutive fever than they to whom calomel alone was exhibited."

Dr. Most declares: "All means which impede the evacuations, particularly opium, make the cholera worse, because they prevent the removal of the fluid and gaseous substances, and favor the resorption of the injurious matter existing in the intestinal canal, and accelerate the decomposition of the blood; which, having become more and more poisonous, paralyzes the brain and nerves."

Heyfelder says, in "Hesselbach's Bibliothek d. Deutschen Medic. und Chirurg.," 1832, Heft. iii., in regard to opium in cholera cases: "Among the physicians of Berlin, Magdeburg, and other places assailed by the cholera, there was almost but one voice: every one rejected it, as it seemed to further the transition into typhus. *Dr. Most* also remarks: "I too have seen, after the use of opium, which Dr. Krueger Hansen has administered, such sudden deterioration, death, and transition into fatal typhus, that I considered it my duty to give public warning against the use of opium, and of powders and drops made from it."

Velpeau (Archiv. Général de Médec. Bit. 29 Juin, 1832, p. 227) says: "L'opium à haute dose, aidé seulement de bains, de friction séches, et de boissons délayantes, donné a plus que vingt malades, ne m'a jamais paru offrir le moindre avantage."

After all these observations against the use of opium in cholera, we find *Dr. Jaffé* (v. Græfe's u. v. Walther's

Journ., Band xviii., p. 656) recommending opium as a reliable remedy in cholera cases, although he afterwards calls it "a rather equivocal remedy."

Velpeau, in the session of the Academy of October 16th of last year (1865), in answer to an appeal of M. Leverrier for information regarding the uncertainties which still invest the cause and treatment of cholera, responded as follows:

"To indicate the effective remedies is easily done, but it is difficult to realize them in practice. Cholera is as yet a very little known disease, which, like all diseases, *very frequently cures itself without any remedy.* Many diseases are even better cured without any remedies. We must tell the truth. In 1839 we tried every remedy which is now proposed; here they seemed to produce good effects, elsewhere none at all. Is it that the patient here cured himself unaided, and there had not the strength? Is it the remedy which acted? We do not know any thing about it. Who, then, is sure of his remedy? Recommend a remedy with the utmost confidence, and the patient dies! It is probable that in the first case the patient would have cured himself, and that the remedy had very little to do with it. This fact does not prevent any one from having confidence in his own infallible recipe: every physician, nay, every simple mortal, has his remedy. There is nothing so difficult as to adapt remedies when every body intermeddles. I am compelled to avow that it is not always in our power to indicate the proper remedy. The cholera undoubtedly appears as the consequence of the introduction into the sys tem of a real poison. Sometimes the stomach refuses to absorb whatever the remedy may be. In such a case we must seek a refuge in external means. On the whole, the

disease nearly always appears with characteristic symptoms, with premonitory diarrhœa: thus preventive treatment is easy, and every one ought to watch over and guard himself. Excesses of every kind soever must be banished, and hygienic rules very carefully observed."

But enough of quotations, which might be multiplied *ad infinitum*, to prove that up to this very day the successive cholera epidemics which have swept the civilized world have taught physicians little if any thing, except the knowledge of the premonitory diarrhœa; a most important fact, it is true, but which of itself affords us no insight into the real nature of cholera, its mode of propagation, nor even the idea of any certain remedial medicine. Physicians have to deal symptomatically—empirically. Thus arise the most outrageous absurdities and violent disputes, while men suffer and die.

If, then, drugs have hitherto been so far at fault, that Velpeau, the very head of the French school of medicine (since the late cholera in Paris, probably the best informed in the world), acknowledges that many have died of the medical remedy, and many others cured themselves—that is to say, recovered in spite of the remedy; and if also we bear in mind, what all eminent and experienced practitioners unite in feeling, that all medicine is an evil in itself, only admitted to supplant the greater evil of disease, —why not make the attempt to assist nature without medicine, in the simple and natural way proposed by hydropathy, which has in all curable stages of disease achieved such ample and satisfactory results? Out of my own experience, I can say that hundreds of invalids, many of them thrown into my hands by the very despair of eminent physicians, have been saved and restored to health by

that system, of which I profess to be the humble exponent.

As I have endeavored to show, the cholera is nearly always preceded by premonitory symptoms, the chief of which are commotions in the bowels, rumblings in the intestinal canal, sometimes with, sometimes without colic pains, and followed by moderate diarrhœa or vomiting. If one act promptly in this stage of the disease, and remove these symptoms, there rarely supervene any of the dangerous characteristics of developed cholera.

The means used to this end—that of stopping the diarrhœa—are of different kinds. The desired effect, it will be readily admitted, is the more easily achieved, the less the remedy applied, excites or affects the already implicated internal organs. Opium, nux vomica, ætheric teas, decoctions, etc., excite the nervous system. If, then, they do not at once produce a decisively favorable result, the succeeding reaction robs the attacked organs of a certain measure of nervous or vital force to resist the disease, which then takes rapid and generally irresistible strides; therefore all such medicines are, of necessity, injurious, unless they act favorably at once. The only organ which resists internal disease without itself becoming affected, is the skin. It must, therefore, be the object of the physician, especially in cholera, to arouse the skin to its utmost activity, and maintain it in that condition. There exists no means which will accomplish this so effectually as cold water. It is, consequently, matter of little surprise that prominent and successful practitioners have, ever since the appearance of cholera in Europe, more or less strenuously advocated the use of water, externally and internally. To cite one prominent case, Dr. G. F. Most (Encyclopædia der

ges. Medicin. u. Chirurg. Praxis, vol. i., p. 417) says: "What an excellent, refreshing remedy cold water is in cholera, I have most thoroughly convinced myself in my own attack of the disease, and in those of my patients. Unfortunately pure water labors under the common fate of virtue, in being much praised and lightly esteemed by the healthy as well as by the sick, by physicians as by others. In my own case, I soon put aside the sal-ammon., spice-drops, wine, coffee, and other heating mixtures, procured fresh spring water, and drank every five minutes from two to four ounces of it; so that during the first and second days I must have taken, on the whole, twenty pounds of fresh water, which did not check perspiration, but, on the contrary, promoted it, and also greatly favored the secretion and excretion of urine, which, in the beginning, was connected with strangury. In numerous cases I have given nothing but water to drink, with such splendid results that I shall shortly publish them. Instigated by purely scientific interest, I ventured to take one quarter of a grain of opium with some sugar. For the first five minutes the effect seemed beneficial; but soon I grew worse, thus: I experienced singing in the ears, dizziness, scintillations before the eyes, optical hallucinations, considerable præcordial oppression, precisely as at the first attack of the cholera, lessened peristaltic motion and increased intestinal pneumatosis; so that the abdomen visibly swelled and no gas passed. After about twenty minutes the pain increased so much, that a condition ensued approaching unconsciousness. It was well I had provided an antidote. I had scarcely sense enough remaining to swallow quickly a drachm of acetic acid in a glass of water; I drank, besides, considerable vinegar and water, and bathed my face in

vinegar. In three quarters of an hour the abominable effects of the opium had disappeared, and I felt about as well as before. I now drank a great deal of cold water. My craving for light and open air for my nervous system was remarkable: the window of my room had to be kept open, and I could look right into the sun without shunning the glare."

After improving daily, Dr. Most became entirely covered with an eruption, which itched greatly, and lasted sixteen days. He finally took injections to move his bowels. He observed a complete desquamation of the extremities in all severe cases of cholera. As to the employment of steam, rubbings and brushings of the skin, and baths, for the purpose of warming the body, he adds: "Experience has proved all these remedies perfectly useless, and even injurious, as they fatigue the already exhausted patient, and render him liable to take cold. If physicians had more decidedly discriminated between *evaporation* and *transpiration*, they might have known this *a priori*."

In order not to overstretch my limits, I subjoin only the names of some of the works which urge the use of cold water in cholera as the only reliable remedy:

Lichtenstädt; Die Asiatische Cholera in Russland.
Id. Meine Erfahrungen in der Cholera.
Id. Rathschläge an das Publikum zur Verhütung und Heilung der Cholera.
Knolz; Darstellung der Brechruhr-epidemie in Wien.
G. Husemann; Behandlung der Cholera mit Eis.
Lienard; Cholera Morbo Frigidus Potus.
Gonzée; Du Cholera Morbus et de son Traitement. (Arch. de la Med., Belg., 1842, Dec.)
Droste; Einheimische Cholera durch Kaltes Brunnen-

wasser. (Clarus and Radius, Beiträge, 1833, No. 20.)

Caspar's Wochenschrift, 1833, No. 29. Anwendung der Kälte in Cholera.

Caspar; Die Asiatische Cholera behandelt mit Kaltem Wasser, 1832.

Müller; Cholera und die Anwendung der Kälte als einfaches Schutzmittel und Hauptmittel.

Hufland's Journal, 1831, p. 69. Brechruhr; über die ausserordentliche vortheilhafte Wirkung der Kalten Wasserklystiere in derselben.

R. Roberts; Exhibition of Cold Water in Cholera. (London Medical Gazette, September, 1832, p. 770.)

Dr. Roetel; Behandlung der Cholera mit Kaltem Wasser.

Von Tabernier; Behandlung der Cholera. (Clarus and Radius, Beiträge, B. 2, No. 15.)

Reich; Cholera in Berlin.

Reider; Cholera in Wien.

Remer; (Casp. Wochenschr., 1835, p. 658.) Die Kalte Behandlung der Cholera.

Reiner; Die epidemische Brechruhr, ihre Verhütung und Heiluug.

Romberg; Bemerkungen über Asiatische Cholera.

Aug. Hirsch in Schmidt's Jahrbüchern, Vol. 84, 1854.

Von Treyden; Leicht fassliche Anweisung zur Erkenntniss und Behandlung der Cholera.

C. Rust; Drei Fälle von Cholera durch Kaltes Wasser geheilt. (Preuss. Med. Ver. Zeitung 1838, No. 8.)

Idem; Einiges über Cholera.

Siebenhaar; Cholera; ihre Verhütung und Behandlung.

Idem; Rationelle Behandlung der Cholera.

Smogowitz; Cholera epidemica, anni 1831.

Whiting; Cholera treated by Cold Water. (London Medical Gazette, Vol. X., September, 1832, p. 738.)

I might mention many more celebrated treatises, show-

ing the superiority of cold water in the treatment of cholera to all other remedies, of which each one has its advocates and opponents, but I shall confine myself to a few more prominent examples.

Dr. Von Sachse (knighted by the king of Prussia on account of his medical eminence) treated all his cholera patients at Ludwigslust (the seat of the duke of Mecklenburg-Schwerin), solely with cold water drinking and baths He lost only a very few patients, while all other physicians, applying violent internal remedies, lost more than half their cases.

The following is announced as having been the most successful treatment of cholera at Calcutta in 1857 and 1858; the stimulation of the skin and the drinking of cold water seem to have been the principal influences. A small quantity of quassia was at once injected into a vein of the patient, who immediately afterwards was thoroughly champooed, and made to swallow, from time to time, some fresh water. The cramps soon disappeared, the patient breathed more freely, and general warmth returned. This process was repeated at every relapse, and four out of five sufferers saved. An old physician, Dr. Honinburger, long in the employ of one of the native princes, introduced this system, and received an annual pension, by way of acknowledgment, from the British government.

Dr. Maxwell, of Calcutta, says he cured himself by copious draughts of effervescent soda powders in cold water; that he afterwards saved many a life by the same treatment. He says that no remedy will avail except relieving the bowels of their fermenting contents, and that if this be not done gently it will be fatal. Why Dr. Maxwell added to his water effervescent soda powders, as soda must irritate

the coatings of the already excited digestive apparatus, appears inexplicable; since he must have known that water alone will readily absorb gases to such an extent, that one hundred volumes of water absorb at least one hundred and fifty volumes of every kind of gas, and that it is, therefore, entirely sufficient for his purpose, as it can be taken in almost unlimited quantities, which is not true of other absorbents, such as alcohol, naphtha, spiced and spirituous tinctures, caustic ammonia, magnesia, charcoal, etc.

I cannot forbear quoting the opinion of the eminent and eccentric Professor Bock, of Leipsic: "Concerning the treatment of cholera, it is a fact that, so far, all the many and much praised specifics have done no good at all, and the best remedies remaining are, water, warmth, and stimulants; but they must be properly exhibited at the very outset of the disease. Against the thirst and feeling of internal heat, cold water, or beer and ice, serve best."

A concluding fact of important bearing is this: out of six thousand two hundred and twenty-eight subscribers to the public baths of Paris, Bordeaux, and Marseilles, *only two deaths were ascribed to cholera.*

Having thus shown that cholera, if met in time, is not by any means a very dangerous disease, and that established specifics have proved futile or worse, while nearly every eminent observer owns the satisfactory effect of cold water, I wish now to narrate a few authentic cases, before proceeding to describe the general treatment I recommend as most successful.

Dr. *J. Weiss* relates the following case:

A Mr. Brickmann, twenty-eight years of age, of Cologne, of robust and vigorous constitution, had been healthy till

1832, when he was attacked at Paris by the cholera. He was given up by his medical advisers. Left alone with his nurse, and hardly conscious, he began to drink cold water to quench his burning thirst once more before he died. After drinking some quarts he felt better, had himself thickly covered, fell asleep, and perspired freely. This prompted him to use nothing but water till his entire recovery.

Dr. Weidenhoffen says: "On my return from Græfenberg, in August, 1837, I found among my patients, on account of the excessive heat, frequent bilious diarrhœa and choleraic symptoms. I observed one in particular who presented the perfect picture of developed Asiatic cholera. The patient was a strong, powerful man, who had tried to stop by domestic remedies a diarrhœa which had troubled him for some days. He grew worse, and on the 30th of August the cholera attacked him in its most violent shape. I was called in, and found the following symptoms: violent vomiting of a thin, tasteless, white fluid; frequent evacuations of a similar fluid; the skin, particularly of the extremities, cold and dry, and wrinkled in folds on the fingers; nails blue; face collapsed, pale; eyes drawn back and surrounded by deep blue rings; tongue blue and cold, voice singularly hoarse; thirst insatiable; abdomen full, painless; pulsation very quick and weak—hardly to be felt; very violent and protracted cramps in the calves.

I confess freely that it was audacious in me, that I at once, without taking refuge in the remedies offered by the medical schools, in this dangerous case, applied cold water; a remedy the efficacy of which I had hardly got acquainted with.

I gave the patient fresh well-water, in sufficient quan-

tity, to drink, which he, in the beginning, again at once vomited out; his abdomen was tightly packed in cold, wet and wrung-out towels, which, as soon as they got warm, were changed for fresh ones; the legs were rubbed with hands dipped in cold water, and enemas were applied. With this treatment, continued for half a day, the dangerous symptoms decreased slowly, till they ceased altogether towards evening.

The patient felt quite well next day, and had already during the forenoon a healthy evacuation.

During the cholera epidemic of 1832 the patients were also made to drink cold water, but it was given only by the spoonful; people were afraid, that a greater quantity would increase the vomiting; there were also ice-cold enemas applied, but only when it was already too late, viz., when bloody stools appeared.

Priessnitz treated thirty-six cholera patients, and lost not one!

Weiss, Piutti, Petri, Frankel, Putzar, and many others have been alike successful. Viek announces having treated, in 1850, seventy-two cholera cases, four of whom died; in 1853, forty-five, of whom one died; and in 1855, twenty-two, of whom one died, to whom he was called at one o'clock P. M., after he had been given up in the morning at eight.

Such statistical facts, if we compare them with those of all other medical systems, must open the eyes of the public, for there the average number of deaths of fully developed cholera is more than sixty to a hundred cases.

The following is the great *Priessnitz's own written advice:*

"As a preventitive against cholera, it is good, to wear a

cold compress round the abdomen, and to cover it with a dry cloth, so that it grows warm more readily; this compress is to be renewed as soon as dry. Every body should wash himself morning and evening, so that the skin remains active. In the morning, before breakfast, and during the day a considerable amount of water should be drank; by this means weakness of the stomach and intestines is prevented. Hot food and hot drink is to be avoided.

"On the appearance of the cholera itself, the following measures are to be taken:

"One or two rubbings with a large dripping wet linen sheet; in case of great pain in the abdomen an enema of cold water, a sitz bath of about 46° to 48° F., connected with drinking of a great deal of water, so that the patient freely vomits; he must remain in the sitz bath and have his back and abdomen rubbed, till vomiting and diarrhœa are quieted.

"If there be much cramp, apply rubbings, alternating every five minutes between wet and dry rubbings. If the patient cannot stand up, he is to be rubbed while lying on a mattress.

"After that let him put on the abdominal bandage and go to bed; and on waking, take a bath of about 50° F. for a few minutes, during which the abdomen is well rubbed.

"The room must be always well aired. As the water in the sitz bath becomes foul, it must be changed; the patient must eat only cold food, never any meat.

"Those who rub and treat the patient must not be afraid. The disease under such treatment is not at all dangerous, for a patient can often in one hour be perfectly restored by it without any after-trouble."

This communication of Priessnitz is of the highest importance, as he himself has cured thirty-six cases of cholera. In conversation he expressed himself, before publishing the above-quoted communication, regarding the treatment of cholera, as follows:

"The manner, in which to proceed in a case of cholera, depends partly on the bodily condition of the patient, partly on the progress the disease has made. If the patient is delicate, the temperature of the water should not be so cold, and the sweating moderate; if the disease has reached the degree of insensibility, begin to use at once enemas of cold water. If the vomiting and diarrhœa be very painful, put the patient at once into a sitz bath of not less than 58° F.; and if he has at the same time headache, surround the head with a cold wet towel. Patient must rub with wet hands stomach and abdomen, while an attendant does the same with his back, legs, and arms, till the natural warmth of the body returns. During this treatment he must continually drink cold water, which is, if he cannot drink himself, to be *given* by another person. This drinking must be continued, till the nausea, the oppression at the stomach, the feverish burning of the skin, diarrhœa, and vomiting shall have subsided. The abdominal bandage must be renewed as soon as hot.

"When the cholera symptoms are diminished by this treatment, or when they have entirely ceased, put the patient to bed, cover the whole abdomen with a cold compress, rub his hands, feet, and whole body, till he is perfectly warm, pack him in a thick woolen blanket, and cover him with a large feather-bed or what else there is at hand, so that he, if possible, perspires and sleeps (which latter is, however, not always the case). Then open the

windows wide, but avoid draught. The patient must remain in this condition as long as he can bear it; after that he is to be put into a bath or washed off with cold water, and he may dress himself, and, if he feels strong enough, be brought into the open air. He must drink, while in bed (if he does not sleep) a great deal of water, and continue to do this *till he is well.*

"The abdominal compresses must also be worn, particularly if there exist yet some slight symptoms of the disease.

"Another very important matter is perfect rest, which the convalescent must strive for, so that the body may gain time to recover its strength, without being fatigued by any exertion.

"The colder degrees of water,—but never ice,—the sweating to dripping can only be applied in very strong constitutions and extreme cases.

"Often, particularly if this treatment is given at the beginning of the attack, the first single application is sufficient for perfect recovery; but if the attacks are repeated, or even grow worse—which may occur in consequence of the obstinacy of the disease, but which should not frighten us at all—we must repeat the proceedings above described, but with perfectly cold water."

To these conversational instructions, Priessnitz added the following remarks:

"1st. The water, to be used, particularly for drinking, should be continually brought fresh from the well or spring; water having stood some time is unfit for use. To elevate the temperature, pour hot water in.

"2d. For compresses we use thoroughly wetted linen, which is well wrung out, but without being warmed by the

wringing hands. Over these compresses we put dry cloths to prevent chill.

"3d. For a sitz bath we use a wooden tub, in which the patient sits, and where the upper part of the body and legs remain outside.

"4th. The general bath is to be taken only so long as it is necessary to have the whole body washed thoroughly.

"5th. If cramps in the feet appear, we take a foot bath of cold water, in which the feet are rubbed hard till the cramps cease.

"6th. For the subduing of the violent pains and heat in the abdomen, we can repeat cold enemas.

"7th. If there are only rumbling and cutting pains in the abdomen, we need only sitz baths, drinking of cold water and abdominal compresses.

"8th. The cholera patient should eat as little as possible, and this only cold; he must not drink any milk. He may eat some stale wheaten bread with butter, and drink at the same time much water. Medicines, tea, and similar things are entirely excluded. It is in general to be recommended that even people in health use themselves to cold food, but in the cholera it is unconditionally necessary.

"9th. The convalescent must, for some time after his cure, continue to bathe and wash the whole body, to drink freely, to perspire moderately; and he will do well, *as every other human being*, to accept for *his whole life* the external and internal use of cold water."

These simple and instructive recommendations of that greatest medical genius of our age, Priessnitz, deserve and claim the attention of the whole faculty, as well as that of the public. But, since the days of Priessnitz, thoroughly educated medical men have not only followed his advice,

but perfected his treatment of cholera in particular, in such a manner, that it seems unaccountable why, in consideration of the unhappy results of all other medical experiments, it is not entirely accepted as the normal and only proper treatment.

Dr. C. A. W. Richter says about the prevention and cure of the cholera:

"The premonitory symptoms consist, in most cases, in an extraordinary commotion in the intestinal canal, and rumbling, with or without colic pains, followed by a moderate diarrhœa, or vomiting. If in this stage the right thing is done, I (Richter) am firmly convinced, that of a hundred cases, not in five will real cholera break out, and that thus by some care the destructive influence of the morbific cause is averted. The experience of the value of these precautionary measures has been so favorable in England, that it is incomprehensible why they are not applied by legal authority wherever the cholera appears.

"The means to oppose the first invasion of the cholera are various, but their effects are more reliable in proportion as they do not specifically irritate any single organ or single system of organs, as is so frequently the case; as, for example, with opium, nux vomica, and tea decoctions, acting on the nervous system, not to mention the often recommended spirituous drinks combined with bitter and astringent substances. If these so-called remedies do not produce *at once* the desired effect, they rob the organs affected by them, particularly the nervous system, of the necessary power of resistance against the disease, which thus gains an irresistible strength. We can, therefore, justly say of these remedies, that if they do not at once relieve, they do the more harm the more extensively they are employed.

"The only organ which, under these circumstances, can by its activity oppose the total destruction of the organic economy is the skin, and the principal object in the treatment of the cholera is always *to rouse this activity, by the proper means, to a sufficient extent and lasting duration.* To attain this object, there exists no more proper means than cold water; and its application for this purpose, when the real cholera has not broken out, viz., in the premonitory stage, is this:

"Put the patient at once in a sitz-bath of the depth of eight or nine inches (any deep wooden wash-tub will answer), the temperature to be about 52° F.; the bath to last from ten to fifteen minutes, during which time the feet and arms of the patient are thoroughly rubbed by two or more assistants, with wet hands. As soon as the patient is taken out of the sitz-bath, he is for two minutes thoroughly rubbed with a wet linen sheet, then dried with hard friction, particularly at the extremities, his abdomen surrounded by a cold, wet, well wrung out linen compress, covered by dry flannel, and finally tightly wrapped up to the armpits in woollen blankets, put to bed with his shirt still on, and there packed in feather beds as thickly as possible. Patient drinks a glass of fresh cold water, and takes after a stool a small cold enema. After one or two hours the patient usually breaks out in a general warm perspiration, which we try to continue for two to three hours by repeated drinking of small portions of fresh water. After that we rub the patient off again with a wet linen sheet, surround the abdomen with the wet compress, and simply put him to bed.

"More dangerous by far is an attack of cholera when its origin is complicated with cold or imprudences in diet.

"The most effectual protection under these circumstances, is the wearing of a wet linen abdominal compress. This may be prepared as follows : A piece of thick linen, about three yards long, and ten inches in width ; half is wetted in cold water, and well rung out ; the wet part is firmly wound round the abdomen, and the dry part over the wet, so that the air cannot touch the wet part. (It is well to cover the whole by some dry flannel. S.) Very soon a warmth is developed under this compress, which exceeds the usual temperature of the surface by some degrees, and which dries the wet part in from three to four hours ; this is then again to be wetted, and put on as before. If the body, besides this, is every morning rubbed off with a cold wet linen sheet, we may be sure that we have the most perfect preventive against the cholera.

" But if the cholera really breaks out, cold water, properly and perseveringly applied, will prove of infinitely more service than all other usual remedies. The manner of applying it is different, according to the intensity and progress of the disease, and according to the character of the curative means at hand. Where we must act promptly, without the proper utensils and appliances in a yet moderate degree of the disease, we fill at once a vessel adapted for a sitz bath, with water of about 52°, F., and put the patient, after we have surrounded his head, turban-fashion, with thick, very wet linen cloths, up to his navel in the sitz bath ; some attendant is then to rub the whole back and the naked legs, from the calf down to the soles of the feet, with cold water; each of these parts should have its own rubber. From time to time, syringe the pit of the stomach with cold water, or dash it on from a tumbler, and let him drink, in small doses, a tumbler of water, in which half a

teaspoonful of common kitchen salt is dissolved; but after each vomiting he must drink a full half tumbler. (I, myself, have not used the salt. S.) This whole procedure should last about fifteen or twenty minutes; the patient is now quickly undressed, and immediately a large linen sheet, ready and dripping with cold water, thrown over his whole body, head and all, and with this he is very vigorously rubbed for at least two minutes. As soon as any part of the body, under the hand of one of the rubbers, gets warm, cold water is poured on it again. After this, another dry linen sheet is similarly thrown over the patient, and he is thoroughly rubbed dry. He is then put to bed, and carefully packed in thick woolen clothes and feather beds; if the feet are yet cold, put a bag, with warm sand, on them. (I have preferred to rub the feet till warm, in this pack, instead of using artificial warmth. S.) After forty to fifty minutes, a warm perspiration usually breaks out, which is permitted to continue for an hour and a half, after that, the patient is quickly washed with the linen sheet wetted with cold water, as before; receives the usual warming cold compress round the abdomen; is dressed in his night-clothes, and put to bed again. We apply the same measures when the patient has had, meanwhile, a stool, and by it the perspiration has been interrupted. This treatment is often alone sufficient to break up the disease. But it must be repeated, if the patient does not sweat after it; and if the other symptoms, particularly the short, quick pulsation is not changed.

"If the disease has progressed still further; if there appear rice-water-like stools, similar vomiting, cramps in the calves, and, particularly, if the pulsations are more than one hundred and twenty per minute, we may yet

arrest the danger, by at once applying the following treatment: Undress the patient, put him into a wooden vessel, and pour over his neck, back, and head, three buckets of cold water, but not with violence; then pour two more such buckets over the abdomen, up to the pit of the stomach, with more vigor; after that, lift the patient out of the vessel, give him the rubbing with the cold wet sheet, and put him to bed, as above. After every stool, give at once a small cold enema, and after every vomiting, half a tumbler of fresh water to drink.

If a physician has resolved to apply water in a cholera case, he must omit, entirely, every other medicine, because many of them, for instance, opium, have besides the described water-treatment, no effect at all, and others certainly vary in their effect in a manner which cannot be calculated in advance.

The above-mentioned treatment with cold water has the physiological effect of lessening the number of pulsations, and every physician knows, that every remedy which moderates the pulsation, increases, decidedly, the activity and secretion of the skin and kidneys, as for instance, digitalis. Cold water moderates quickly and more decidedly than any other known remedy, the rate of pulsation; it, therefore, influences also more quickly and more decidedly the excretion of the skin and kidneys, and this is the object to be attained in the case of the cholera.

Richter says, the disease appears frequently and suddenly after the use of cucumbers or raw fruit, particularly when water or beer was drank after it; fresh cooked or roasted potatoes, eaten cold; beans; cabbage of every kind; fresh rye bread; fresh cheese; salted fish; crabs, melons; ices; rich cake; fat flour preparations, etc.

I might add the treatment, with cold water, of many other eminent men, whose success is acknowledged, but the above is sufficient to give the information intended by these pages. I hope that the public, but particularly physicians, to whom their calling appears as sacred as to me, will not shut their eyes to the life-important question of which these pages treat.

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